Vector Borne Disease
Surveillance Report
Summit County Public Health

Report Weeks 17-18
September 17-30, 2017
CDC MMWR Weeks 38-39

This report will run from June through October of each year (or later if West Nile Virus disease is still a concern). Surveillance will include mosquitoes, horses, and humans. It will also include updates from Ohio and around the nation. It will include vector-borne diseases besides West Nile virus. The year 2017 report will include updates on Zika virus.

SUMMIT COUNTY

Table 1: West Nile Virus Tests Processed by Summit County Hospital Labs

Week(s)	# of WNV tests ordered this period	# of positive WNV tests this period	Cumulative # of tests ordered this season	Cumulative # of positive tests this season	Percentage of positive tests
Week 1-2: 5-28 to 6-10	2	0	2	0	0%
Week 3-4: 6-11 to 6-24	1	0	3	0	0%
Week 5-6: 6-25 to 7-8	5	0	8	0	0%
Week 7-8: 7-9 to 7-22	7	0	15	0	0%
Week 9-10: 7-23 to 8-5	4	0	19	0	0%
Week 11-12: 8-6 to 8-19	13	0	32	0	0%
Week 13-14: 8-20 to 9-2	4	1	36	1	2.7%
Week 15-16: 9-03 to 9-16	2	0	38	1	2.6%
Week 17-18: 9-17 to 9-30	7	0	45	1	2.2%
Week 19-20: 10-1 to 10-14					
Week 21-22: 10-15 to 10-28					

During the surveillance period Week 17 and 18, there were 7 tests ordered for WNV by Summit County hospitals, and all results were negative (Table 1). To date there have been 21 reported cases of human WNV in Ohio, and one in Summit County on August 25, 2017. The Summit County case was neuro-invasive but is recovering.

During weeks 17 & 18, there were 2 suspect cases of Lyme disease in Summit County, bringing the year to date total to 14 suspected cases of Lyme disease reported in Summit County and 3 confirmed. Area labs reported 12 tests for Lyme disease done during weeks 17& 18. Read more about Tick-borne Disease on pages 7-9 of this report.

Year-to-date there remains one case of Zika, reported in Summit County (January, 2017). This case was travel related.

Two cases of travel related malaria were reported this year to date. The most recent case reported September 4, 2017 was related to travel to Liberia.

There were 2 reported cases of aseptic meningitis in Weeks 17 and 18 in Summit County (Table 3).

Mosquito Testing in Summit County*

Final Data for 2017

Mosquitoes identified	**68, 036**
Pooled samples tested	**896**
Positive WNV samples	**313**

*Final results for the 2017 season - trapping has stopped and ODH has tested all mosquitoes.

Table 2: Other Vector-borne Diseases Reported in Summit County, Year-to-date 2017 *

	Confirmed	Suspected
Babesiosis	**0**	**1**
Chikungunya	**0**	**0**
Dengue	**0**	**0**
Ehrlichiosis	**0**	**1**
Lyme**	**3**	**14**
Malaria	**2**	**0**
Rocky Mountain spotted fever	**0**	**2**
Zika	**1**	**0**

Note: *Reporting may not be completed each week. Numbers will be updated when reports are received and confirmed.

****CDC currently recommends a two-step process when testing blood for evidence of antibodies against the Lyme disease bacteria. Both steps can be done using the same blood sample. The first step uses a testing procedure called "EIA" (enzyme immunoassay) or rarely, an "IFA" (indirect immunofluorescence assay). If this first step is negative, no further testing of the specimen is recommended. If the first step is positive or indeterminate (sometimes called "equivocal"), then the second step should be performed. The second step uses a test called an immunoblot test, commonly, a "Western blot" test. Results are considered positive only if the EIA/IFA and the immunoblot are both positive**

Table 3: Reported Aseptic Meningitis Cases in Summit County (confirmed & suspected) ***

Week(s)	Cases reported this period	Cumulative cases for the season (5-28 to 10-28-17)
Week 1-2: 5-28 to 6-10	0	0
Week 3-4: 6-11 to 6-24	1	1
Week 5-6: 6-25 to 7-8	3	4
Week 7-8: 7-9 to 7-22	1	5
Week 9-10: 7-23 to 8-5	2	7
Week 11-12: 8-6 to 8-19	2	9
Week 13-14: 8-20 to 9-2	2	11
Week 15-16: 9-3 to 9-16	2	13
Week 17-18: 9-17 to 9-30	2	15
Week 19-20: 10-1 to 10-14		
Week 21-22: 10-15 to 10-28		

***Aseptic (viral) meningitis is the most common type of meningitis and occurs predominantly during summer and fall. While most aseptic meningitis cases are due to gastrointestinal or respiratory viruses, similar symptoms may be present with arthropod-borne diseases. Reference: https://www.cdc.gov/meningitis/clinical-resources.html For this report, the WNV surveillance season will start in mid-June and stop at the end of October. This data comes from the weekly report that the Ohio Department of Health sends to the Centers of Disease Control and Prevention

Ohio Mosquito-borne Disease 2017 Numbers-At-A-Glance as of October 4, 2017:

West Nile Virus **		Notes
Mosquitoes tested	422,882	Collected in 66 counties, pooled into 15,415 samples
WNV positive mosquito samples	2,178	Ashland (12), Ashtabula (6), Athens (4), Butler (1), Clark (11), Columbiana (4), Coshocton (2), Crawford (6), Cuyahoga (20), Delaware (21), Fairfield (3), Franklin (683), Greene (20), Hamilton (93), Hancock (27), Henry (3), Hocking (22), Huron (1), Jackson (2), Knox (6), Lake (91), Lawrence (1), Licking (77), Lorain (79), Lucas (166), Madison (1), Mahoning (4), Medina (13), Meigs (13), Montgomery (69), Pickaway (27), Portage (185), Richland (50), Ross (12), Scioto (4), Stark (37), Summit (350), Tuscarawas (16), Warren (1), Washington (3) and Wood (32) counties
WNV Veterinary Cases	10	10 equine cases in Ashtabula (1), Geauga (1), Holmes (1), Logan (2), Tuscarawas (1) and Wayne (4) counties with onsets between 8/24 - 9/15/17.
Asymptomatic Viremic Blood Donors	8	5 females, 3 males ranging in age from 19-67 years (median: 50 years) from Fairfield (1), Franklin (2), Hamilton (1), Holmes (1), Medina (1), Mercer (1) and Stark (1) counties
WNV Human Cases	**21**	14 females, 7 males ranging in age from 35-77 years (median: 57 years) from Butler (1), Clark (1), Clermont (2), Cuyahoga (4), Defiance (1), Franklin (1), Greene (1), Hamilton (3) Huron (1), Lake (1), Logan (1), Lucas (1), Stark (1), Summit (1) and Tuscarawas (1) counties
Counties with WNV activity reported	47	includes counties with WNV positive mosquitoes, equine WNV cases, human WNV cases and viremic asymptomatic blood donors
Locally aquired mosquito-borne diseases		**Notes**
LaCrosse / California serogroup virus Human Cases	**14**	6 females, 8 males ranging in age from 2-65 years (median 8.5 years) from Allen (1), Ashland (2), Delaware (1), Holmes (2), Knox (1), Medina (1), Muskingum (1), Preble (1), Ross (1), Summit (2) and Williams (1) counties
Eastern equine encephalitis virus - Veterinary Cases	1	1 equine case, a 7 year old gelding, in Ashtabula County with onset of neurologic disease on 7/25/17. The horse was euthanized.
associated mosquito-borne diseases **		**Notes**
Chikungunya Human Cases*	**3**	2 females, 1 male ranging in age from 16-39 years (median 37 years) with travel to India and Mexico
Dengue Human Cases	**3**	1 female, 2 males ranging in age from 17-60 years (median 27 years) with travel to Asian countries
Zika Human Cases*	**4**	2 males, 2 females ranging in age from 12-59 years (median 34.5 years) with travel to Caribbean islands
Malaria Human Cases	**46**	18 females, 28 males ranging in age from 1-77 years (median 29.5 years) with travel to African countries, Afghanistan and Guatemala

*Ohioans traveling to areas where local transmission is occurring should be aware of this ongoing situation and make every effort to mosquito bites. Additional information can be found from the CDC (www.cdc.gov/chikungunya, www.cdc.gov/zika/geo/index.html) and the Pan American Health Organization (www.paho.org/chikungunya, www.paho.org/zika).

**Updated 10/4/17

In addition to the information reported in the table above, ODH has additional suspected cases of WNV and LAC under investigation and continue to receive reports of WNV positive mosquito samples almost daily from the lab. This activity will continue until freezing weather brings an end to mosquito season.

Avoid mosquito bites. It is import to prioritize personal protection to prevent mosquito bites.

- Wear EPA-registered mosquito repellents whenever mosquitoes are present and follow label instructions.
- Wear long, loose, light-colored clothing.
- Install or repair screens on windows and doors to keep mosquitoes outside.

Help reduce mosquito breeding around your home. Get rid of potential mosquito breeding sites to help prevent mosquito-borne diseases.

- Empty standing water from flowerpots, gutters, buckets, pool covers, pet water dishes, discarded tires, and birdbaths.
- Consider using products containing *Bacillus thuringiensis israelensis* (Bti), available at many garden and home improvement stores, to control mosquito larvae in containers that are too large to empty. Follow the label instructions.

UNITED STATES SURVEILLANCE

Table 4: Reported Vector Borne Disease in the United States*

Disease	Current Week(s) Weeks 17-18 09/17--09/30/2017	2017 Cumulative
West Nile Virus		
Neuroinvasive	7	658
Non neuroinvasive	2	419
Babesiosis	17	1,333
Chikungunya	0	52
Dengue	0	153
Eastern Equine Encephalitis	0	0
La Crosse Virus	1	29
Malaria	17	1.285
Spotted Fever Rickettsiosis	0	151
St Louis Encephalitis	0	2
Zika	2	324

Source: https://www.cdc.gov/mmwr/volumes/66/wr/mm6634md.htm?s_cid=mm6634md_w

*Case counts for reporting years 2016 and 2017 from the CDC are provisional and subject to change.

The CDC's website for WNV is: http://www.cdc.gov/ncidod/dvbid/westnile/index.htm

The CDC's website for MMWR reporting is:https://www.cdc.gov/mmwr/index2017.html and the reader should select Notifiable Diseases under the week of inquiry.
The CDC's website for Zika updates: http://www.cdc.gov/zika/

This report was issued on October 6, 2017**.**

Tickborne Disease

The most common symptoms of tick-related illnesses are:

- Fever/chills: With all tickborne diseases, patients can experience fever at varying degrees and time of onset.
- Aches and pains: Tickborne disease symptoms include headache, fatigue, and muscle aches. With Lyme disease you may also experience joint pain. The severity and time of onset of these symptoms can depend on the disease and the patient's personal tolerance level.

o "Target" lesion on patient with Lyme disease.

In Lyme disease, the rash may appear within 3-30 days, typically before the onset of fever. The Lyme disease rash is the first sign of infection and is usually a circular rash called erythema migrans or EM. This rash occurs in approximately 70-80% of infected persons and begins at the site of a tick bite. It may be warm, but is not usually painful. Some patients develop additional EM lesions in other areas of the body several days later.

Patient with STARI.(Southern Tick Associated Rash Illness)

1. Site of tick bite
2. Red, radial, expanding edge of rash
3. Central clearing

Late (petechial) rash on hand and forearm in patient with Rocky Mountain spotted fever.

An ulcer caused by tularemia.

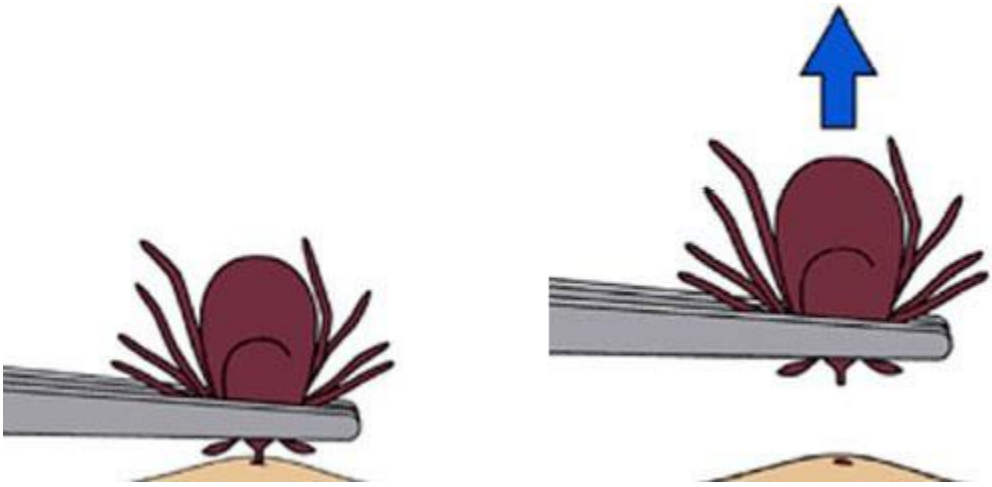
Tickborne diseases can result in mild symptoms treatable at home to severe infections requiring hospitalization. Although easily treated with antibiotics, these diseases can be difficult for physicians to diagnose. However, early recognition and treatment of the infection decreases the risk of serious complications. So see your doctor immediately if you have been bitten by a tick and experience any of the symptoms described here.

Reference: https://www.cdc.gov/ticks/symptoms.html

How to remove a tick

1. Use fine-tipped tweezers to grasp the tick as close to the skin's surface as possible.
2. Pull upward with steady, even pressure. Don't twist or jerk the tick; this can cause the mouth-parts to break off and remain in the skin. If this happens, remove the mouth-parts with tweezers. If you are unable to remove the mouth easily with clean tweezers, leave it alone and let the skin heal.
3. After removing the tick, thoroughly clean the bite area and your hands with rubbing alcohol, an iodine scrub, or soap and water.
4. Dispose of a live tick by submersing it in alcohol, placing it in a sealed bag/container, wrapping it tightly in tape, or flushing it down the toilet. Never crush a tick with your fingers.

Avoid folklore remedies such as "painting" the tick with nail polish or petroleum jelly, or using heat to make the tick detach from the skin. Your goal is to remove the tick as quickly as possible–not waiting for it to detach.



Follow-up

If you develop a rash or fever within several weeks of removing a tick, see your doctor. Be sure to tell the doctor about your recent tick bite, when the bite occurred, and where you most likely acquired the tick.

Reference: https://www.cdc.gov/ticks/removing_a_tick.html